

Urologic Emergencies



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KEYWORDS

- Urologic emergencies • Testicular torsion • Acute urinary retention • Paraphimosis
- Obstructed pyonephrosis • Fournier gangrene • Ischemic priapism

KEY POINTS

- Urologic emergencies must be identified in a timely fashion.
- Optimal management strategy should be determined when urologic services are not available.
- An understanding of the pathophysiology of acute urologic emergencies is crucial.

ACUTE URINARY RETENTION

Overview

Urinary retention is one of the most common medical problems encountered in clinical practice, and most health care professionals will be involved in its treatment at one time or another. Acute and chronic urinary retention, however, are different clinical entities that demand differing courses of treatment. Acute urinary retention (AUR) requires prompt recognition and reversal by medical staff of all levels, whereas chronic urinary retention is by definition a less immediately severe condition.

Causes/Pathophysiology

Stated broadly, AUR is the sudden inability of the bladder to empty itself of urine, whether due to a blocked outflow tract or intrinsic abnormality of the bladder (or both). Using this definition, AUR can be divided into obstructive and dysfunctional categories.

In all obstructive causes of AUR, the underlying cause of retention is the physical obstruction of the outflow tract, that is, the bladder neck or urethra. This obstruction is most commonly due to benign prostatic hyperplasia (BPH), a common condition among older men. As men age, the central zone of the prostate (the area lining the urethra) undergoes a slow but steady enlargement, causing progressive narrowing of the urethra. Because the onset is insidious, a patient may chronically retain increasing

There are no disclosures to report.

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Surg Clin N Am 96 (2016) 407–424
<http://dx.doi.org/10.1016/j.suc.2016.02.001>

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amounts of urine for many years before a precipitating event suddenly leads to the complete inability to urinate. The inciting event can be infection, medications, recent trauma (such as urethral catheter insertion), locoregional anesthesia, or idiopathic. Once in retention, the bladder becomes over-distended such that the sarcomeres of the smooth muscle cells in the bladder wall cannot properly engage one another, and the contractile force of the bladder is diminished, worsening the problem.

Any other process that causes urethral narrowing can produce difficulty emptying the bladder, such as urethral stricture or bladder neck contracture. Urethral strictures and bladder neck contractures are typically sequelae of urologic procedures, such as traumatic urethral instrumentation or previous prostate surgery, straddle injuries, or sexually transmitted infection. However, they may be congenital, and patients may not be aware of them at the time of presentation.

Urine outflow can also be blocked by a foreign object. The most common cause is a blood clot formed within the bladder of a patient with significant gross hematuria, whether from bladder cancer, traumatic urethral catheter insertion, or recent surgery. Any recent urologic surgery or procedure is a risk factor for hematuria. Other foreign objects can block urine outflow as well, such as bladder or kidney stones, or material left over from urologic procedures that involve resection of tissue.

In addition, intrinsic bladder dysfunction can produce urinary retention every bit as acutely as a physical blockage and can worsen any underlying low-level physical blockage as well. Common causes for bladder dysfunction include medications (anticholinergics in particular), nerve damage due to diabetes or congenital defect, and, as previously discussed, simple over-distention due to other causes¹ (**Box 1**).

Diagnosis

The diagnosis of AUR is straightforward in theory, but occasionally challenging in practice. Patients with AUR will usually complain of suprapubic pain/pressure, urinary frequency, urgency, voiding in small amounts, bladder spasms, penile pain, and inability to urinate, but some patients may be unable to relate their symptoms, or may actually be asymptomatic. If patients have diminished bladder sensation, their symptoms can be nonspecific: these patients often present with only shortness of breath and diaphoresis.

A bladder scanner may be used to quantify the amount of urine present in the bladder to aid diagnosis, but the results should be interpreted carefully. The bladder scanner is frequently fooled by the presence of intra-abdominal fluid, oddly shaped

Box 1

Common drugs leading to bladder dysfunction

Benadryl (diphenhydramine)
 General/locoregional anesthetics
 Opioids
 Alcohol intoxication
 Antidepressants (tricyclics especially)
 Decongestants
 Muscle relaxants

Adapted from Vilke GM, Ufberg JW, Harrigan RA, et al. Evaluation and treatment of acute urinary retention. *J Emerg Med* 2008;35(2):194.

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